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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/729,086	12/05/2000	Masaru Aoki	400953	3272

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EXAMINER
AKKAPEDDI, PRASAD R

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 06/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/729,086	AOKI ET AL.	
	Examiner	Art Unit	
	Prasad R Akkapeddi	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 March 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,6 and 8-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,6 and 8-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 December 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *6* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Due to the amended claims all of the previous 35 USC 112 rejections are hereby withdrawn, except as noted below.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites the limitation ' the distance between a first of said driving transistors and a second of driving transistors'. The specification and the drawings refer to several driving transistors and there is no labeling as to which ones are the first and which ones are the second driving transistors, it is hard to define the 'distance' between a first and second driving transistor as recited.

4. Claims 1, 6, 9, 10 and 12 recite the limitation "said channel regions". There is insufficient antecedent basis for this limitation in the claim.

5. Claim 9 recites the limitation "said display area" in claim 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1, 3, 6 and 10-12 rejected under 35 U.S.C. 103(a) as being unpatentable over Shiraki et al. (Shiraki) (U.S.Patent No. 5,844,538).

As to claims 1 and 10: Shiraki discloses an active matrix –type image display apparatus comprising a LCD and a thin film transistor (TFT) panel (70), driving the liquid crystal display, and having a driving circuit area on which a

plurality of driving transistors (107) are located, said driving transistors including respective sources, gates, and drains, and said driving circuit area including gate interconnections (105) interconnecting gates of at least pairs of said driving transistors (Fig. 26). Shiraki also discloses that the gate interconnections (105) are located along respective zigzag patterns, each zigzag pattern including a first straight line extending along a first direction, a second straight line extending along a second direction different from the first direction, and a third straight line intersecting and oblique to each of the first and second straight lines, and the gates of the driving transistors that are interconnected are located on the first and second straight lines, and the channel regions (104) of the driving transistors (107) do not overlie the third straight line. The first line is defined as the line that is to extreme right of the region shown as (104), the second straight line is the one next one and the third one is to the left of the region shown as (104).

Shiraki does not explicitly disclose the gate interconnects in Fig. 26. However in Fig. 9, Shiraki discloses such interconnections between the transistors (TR1 and TR2) and scan signal lines (1). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to clearly understand 'gate interconnections' by persons of ordinary skill in the art of liquid crystal displays and an elucidation of what a gate interconnect is not necessary. In any case the applicant is referred to the teachings of Sung (U.S.Patent No. 5,978,058) for gate interconnects.

a. As to claims 3, 6, 11 and 12: Shiraki discloses each of the first and second straight lines includes a plurality of parallel straight line segments joined by respective oblique straight line segments oblique to the parallel straight line segments (Fig. 26) as recited in claims 3 and 11. Shiraki also discloses that the channel regions (104) of the driving transistors (107) that are interconnected have respective widths that are parallel to the first and second straight lines (Fig. 26) as recited in claims 6 and 12. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt the specific geometry to improve the aperture and maintain excellent quality of image of the display.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiraki in view of Yamakazi et al. (Yamakazi) (U.S.Patent No. 5,821,138).

Shiraki does not disclose that the driver transistors are polycrystalline silicon, crystallized from amorphous silicon by irradiation with a laser beam. Yamakzi however in disclosing a method of manufacturing a semiconductor

device, discloses the crystallization by the irradiation of laser beam to form transistors (col. 11, lines 18-21 and col. 12, lines 37-42).

As to the product-by-process limitation " the driver transistors are polycrystalline silicon, crystallized from amorphous silicon by irradiation with a laser beam tracing stripes on said TFT panel, the stripes being spaced at uniform interval on the TFT panel, and distance between a first of said driving transistors and a second of said driving transistors, neighboring and positioned nearest to the first driving transistor, is longer than the interval of the stripes that are traces of the laser beam" of claim 8 and "the driver transistors arc polycrystalline silicon, crystallized from amorphous silicon by irradiation with a laser beam tracing strips on said TFT panel, the strips being spaced at uniformed interval on the TFT panel, and, in the channel region of each of said driving transistors, distance between a corner of the channel region nearest to the display area and a corner of the channel region farthest from the display area, is longer than the interval of the strips that arc traces of the laser beam" as recited in claim 9, it has been recognized that "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

(Note: Laser is not a part of a liquid crystal device).

Claims 8 and 9 could not be examined further due to the ambiguity of 'distance' as stated in the above U.S.C 112 rejections.

Response to Arguments

10. Applicant's arguments with respect to claims 1,3,6,8,9 and 10 have been considered but are moot in view of the new ground(s) of rejection.

11. The applicant states that the Examiner is unfamiliar with LCD technology and cites a reference that describes a conventional LCD. The Examiner would like to state for the record that having a Ph.D in the field and also having worked in the Industry for more than twenty years, the Examiner is quite familiar with the technology and he does not require any assistance from the applicant of the teachings in the field. The original objections as stated in the Office action dated October 29, 2002 were directed to the specific device, as presented in the instant application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prasad R Akkapeddi whose telephone number is 703-305-4767. The examiner can normally be reached on 7:00AM to 5:30PM M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H Kim can be reached on 703-305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0530.

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May 22, 2003

ROBERT H. KIM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800